

Cardiotoxicity Quick Reference Guide

Anticancer Agents	Type of Cardiotoxicity	Reported Frequency
Alkylating Agent Cyclophosphamide, Ifosfamide Cisplatin	Hemorrhagic Myopericarditis (with high dose) Symptomatic Cardiomyopathy Venous and arterial thromboembolism Hypertension Hyperlipidemia Raynaud Phenomenon	7-25% 22% 12.9% 9.4% 7.9% 33.4%
Androgen deprivation therapy/Anti-androgen	Metabolic syndrome Aldosterone associated hypertension	*
Anthracyclines (doxorubicin, daunorubicin, epirubicin, idarubicin, mitoxantrone)	LV dysfunction (dose dependent) Heart failure (dose dependent)	7% @ 150 mg/m ² [†] 26% @ 550 mg/m ² [†]
Checkpoint Inhibitors (ipililimumab, nivolumab, pembrolizumab)	Myocarditis (rare but potentially fatal) Heart failure Arrhythmia	1% * *
Chimeric Antigen Receptor (CAR) T Cell Therapy	Tachycardia Grade 3 or higher Arrhythmia Grade 3 or higher Cardiac arrest Cardiac failure	26-57% 2-4% 23% 7% 4% 6-7%
Fluoropyrimidine	Coronary vasospasm	0-19%

(5-FU, capecitabine)	Myocardial infarction	0-2%
HER-2 targeted therapy (trastuzumab, pertuzumab)	LV dysfunction with anthracyclines Heart failure with anthracyclines	9.4% 18.6% 0.4-12% 2-20%
Immunomodulatory agent (thalidomide, lenalidomide, pomalidomide)	Venous thromboembolism Arterial thromboembolism Sinus bradycardia (thalidomide) severe or life threatening	0-75% ~5% 26% 3%
PI3K/AKT/mTOR inhibitors (everolimus, idelasib, temsirolimus)	Hyperglycemia, hypercholesterolemia, hypertriglyceridemia	>50%
Proteasome inhibitors (bortezomib, carfilzomib)	Hypertension Heart failure (carfilzomib)	8-23% 4%
Radiation (mediastinal/thoracic)	Arrhythmia Autonomic dysfunction Coronary heart disease Heart failure Pacemaker/ICD malfunction Pericardial disease Valvular heart disease	16% 30-45% 19-20% 11-12% 3% 5% 11-31%
Tyrosine kinase inhibitors (see also VSP inhibitors, HER2 antagonists and mTOR inhibitors) Incidence of adverse effects varies with specific drugs.	Arterial thromboembolic event (ponatinib) Atrial fibrillation (ibrutinib) Atherosclerosis (nilotinib) Bleeding (ibrutinib) Bradycardia (trametinib) Edema (imatinib)	

	Hypertension (ibrutinib, trametinib, nilotinib) LV dysfunction (ponatinib, trametinib) QT prolongation (trametinib, dabrafenib, nilotinib) Venous thromboembolic event (ponatinib, erlotinib, trametinib, nilotinib)	
VSP Inhibitors (bevacizumab, pazopanib, sunitinib, sorafenib, axitinib,	Arterial thromboembolic event Hypertension LV dysfunction Venous thromboembolic event QT prolongation > 500 ms (vandetanib)	0-5.4% 20-91% 10-15% 2-11.9% 2.7%
Other Cancer Therapies Arsenic trioxide Decitabine Docetaxel/paclitaxel Ribociclib Tretinoin Vorinostat	 QT prolongation Heart failure, myocardial infarction, supraventricular tachycardia Autonomic dysfunction QT prolongation Arrhythmias Heart Failure QT prolongation	 38% <5% * 3% 23% 6% 3.2%

* Exact incidence unknown and/or studies conflicting.

† Doxorubicin equivalent dose.